

Before a Hearing
Commissioner Appointed by
Tararua District Council

In the Matter of the Resource Management Act 1991

And

In the Matter of the application by Energy Bay Limited to the Tararua District Council for resource consent to establish and operate a solar farm at 410 Mangamaire Road, Paihiatua.

Statement of Evidence of
Catherine Boulton
for Energy Bay Limited
Dated: 16 August 2023

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1. INTRODUCTION

Qualifications and Experience

- 1.1. My full name is Catherine Mary Louise Boulton. I am a Consultant Planner at Planz Consultants in Christchurch. I hold a Bachelor of Science (Geography) and Bachelor of Arts (Honours) from Canterbury University and a Master of Resource and Environmental Planning from Massey University. I am an Associate member of the New Zealand Planning Institute.
- 1.2. I have over sixteen years experience working as a planner, which has included a wide range of resource consent application preparation and processing experience for private consultancies and public sectors in the United Kingdom and New Zealand. The current application is one of three solar farm developments I am working on directly with Energy Bay Limited. I have also indirectly been involved with two further Energy Bay solar farms.

Involvement in Proposal

- 1.3. I have been involved with Energy Bay's solar farm proposal ("Proposal") since January 2022. Initial involvement in the project included a site visit, a pre-application meeting with the Tararua District Council and providing advice to Energy Bay and respective experts on the consent application. I have visited the Site on two further occasions for iwi consultation and am familiar with the surrounding area.
- 1.4. I prepared the Assessment of Environmental Effects ("AEE") and this was internally reviewed at Planz Consultants.
- 1.5. I have subsequently been involved in numerous discussions with Council's planning team, including Mr Bashford, Council's Consultant Planner for this application. I have coordinated expert input and prepared responses to Council's initial further information request on the application. I have been involved in correspondence with Transpower regarding setbacks from their transmission lines and have made contact with submitters on this application.

2. CODE OF CONDUCT

- 2.1. I confirm that I have read the Code of Conduct for Expert Witnesses 2014 contained in the Environment Court Practice Note and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware

of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

3. SCOPE OF EVIDENCE

3.1. My evidence is given on behalf of Energy Bay Limited on planning matters relating to the establishment of a new solar farm at Mangamaire Road.

3.2. My evidence provides a summary of the following:

- (a) Site and surrounding area description, summary of the Proposal (as notified) and any changes since notification of the application;
- (b) The matters for which resource consent is sought from the Tararua District Council;
- (c) The associated potential environmental effects (both positive and adverse);
- (d) The relevant policy framework applicable to this application.
- (e) Key matters raised in the section 42A report, which has been prepared by Mr Andrew Bashford;
- (f) Addresses the submissions on the application that raise specific planning issues; and
- (g) A response to the draft proposed conditions of consent as they currently stand.

3.3. My conclusions have been informed by the opinion of the following experts who are also presenting for the applicant:

- Mr Rory Langbridge, Landscape Architect, Rough Milne Mitchell Landscape Architects
- Ms Mary Hamilton, Acoustician, Marshall Day Acoustics,
- Mr Peter Hayman, Associate Consultant, SLR Consulting

4. SUMMARY OF THE PROPOSAL

The site and Surrounding Area

- 4.1. A detailed description of the Site and surrounding area is contained in the AEE and in the Landscape Assessment Report attached as Appendix 2 of the AEE. I will not repeat this detailed description but will provide a short summary below.
- 4.2. The Site is located across 6 titles, with three on the western side of Mangamaire Road ('Farm A') and three on the eastern side ('Farm B'). The combined title area is approximately 114ha, but Farms A and B do not extend across the whole of the title area. Instead they cover an area of approximately 86ha with the area of the solar farms being approximately 60ha.
- 4.3. Both Farm A and B are a series of flat pasture paddocks with little vegetation due to historic farm practices except for scatterings of remnant shelterbelts, primarily macrocarpa. Farm A has overhead powerlines tracking northeast, southwest parallel to the road and approximately 175m back from the Mangamaire Road boundary. It also bounds the Wairarapa Railway Line (it is understood that no regular services currently run along this Masterton to Pahiatua section) and contains a wetland area in the northern part of this site. Farm B has overhead powerlines running through the Site approximately 150m back from the Mangamaire Road frontage and alongside its Tutaekara Road frontage. It also adjoins a quarry to the south.
- 4.4. The Site is located within the Mangatainoka River valley on an elevated river terrace between the Mangatainoka River to the east and the Wairarapa railway line to Pahiatua to the west before the range of hills that separates the Mangatainoka and Mangahao valleys.
- 4.5. The surrounding area is characterised by its agricultural use, a quarry, the PowerCo and Transpower substations and their associated lines and the cluster of houses along Tutaekara Road.

Proposal Description as Notified

- 4.6. The solar farm comprises approximately 88,500 solar panels spread across about 885 bases split between Farms A and B the solar panels have a thick glass surface with an anti-reflection coating which acts to minimise the amount

of light that is reflected away from the solar panel. That maximises the solar panel's efficiency.

- 4.7. The solar panels are fixed atop a solar table consisting of a steel structure attached to the ground by seven steel poles centralised along its length. The solar tables proposed are tracking solar tables meaning that the structure is designed to move relative to the sun's angle. In the morning, the solar panels face east; during the day (as the sun moves), they pivot towards the west in the afternoon. The solar tables can be programmed to be stowed or rested at a particular position during night-time hours. The stow and resting position will also be dependent on wind conditions.
- 4.8. Each solar table comprises 52 panels long by 2 panels wide (totalling 104 solar panels per solar table). The dimensions of each solar table are approximately 60m long by 4.9m wide.
- 4.9. When parallel with the ground, the top of the solar table is approximately 2.46m above ground level. When the solar tables are facing as far east or west as they can rotate, the top of the tables is approximately 4.55m above ground level, while the bottom of the solar tables is approximately 30cm above ground level.
- 4.10. The solar tables are spaced apart so they do not shade one another. The centre of the rows of solar tables are approximately 9.7m apart. When the solar tables are facing directly upwards (i.e. flat) there is a 4.8m gap between the rows of solar tables. When they are facing as far east or west as possible, there is a 7.1m gap between the rows of solar tables.
- 4.11. Eleven inverters will also be located across Farms A and B. These convert the DC current from the solar panels to an AC Current so this power source can enter the Power Co substation. The inverters are approximately 2.8m long, 1.6m wide and 2.3m high and are white/off white in colour.
- 4.12. This solar farm is estimated to generate approximately 72.69 MWh in its first year, based on an average annual usage of 7,000kwh/NZ home equates to the power needs of around 10,384 homes.
- 4.13. Site preparation works are also proposed involving earthworks for access tracks, cable trenching to establish the wiring and import of clean fill for HV trenching for the inverter bases and recontouring of the site

- 4.14. The external boundaries of Farms A and B will be fenced with a security deer-type fence surrounding it.
- 4.15. Shelterbelt planting is proposed alongside the Mangamaire Road frontages of Farms A and B, alongside the Tutaekara Road frontage of the Site and along the southern boundary of Site B. Wetland buffer plans are also proposed at the North-Western corner of Site A.
- 4.16. Farms A and B will continue to be grazed by stock under and around the panels. This will likely be either sheep or calves.
- 4.17. The proposed development requires resource consent from the Tararua District Council as a discretionary activity for the following reasons:
- (a) The proposal is for renewable electricity generation, which was not operational when the District Plan became operative.
 - (b) Earthworks required for the establishment of the solar farm exceed the permitted volume of earthworks.
 - (c) Glare from the solar panels will occur.

Change to the Proposal post notification

- 4.18. An amendment is proposed to the description of the fencing, following the lodgement of the application. TDC was advised of a proposed change in the fence to a 1.8m chain mesh netting fence with barbed wire lines above, extending it to a height of 2m. This fence is now proposed to revert back to the deer fencing originally proposed. This fencing will be setback so that it is setback 22m outside the Transpower transmission line setbacks and 11m from the Powerco lines.
- 4.19. An amendment is proposed to the shelterbelt planting at the boundaries. This planting is also to be setback so that it is located outside of the required electricity line setbacks. The planting at the shelterbelt is now proposed to be either cypress or totara hedgerow instead of flax and is to be either and will be planted adjacent to additional areas near the site boundaries to address glare.

5. CONSENTS REQUIRED FROM TARARUA DISTRICT COUNCIL

5.1. The application was lodged with the Tararua District Council on 23rd September 2022, with consent being sought for a Discretionary Activity for the following matters:

- (a) Standard 5.3.7.2(b) is not met as the Proposal is for a new solar farm which was therefore not in existence when the Plan became operative. Solar farms' construction, operation and maintenance are otherwise not provided for in the Plan. Consent is sought for a discretionary activity under Rule 4.1.6.1(b).
- (b) The Proposal exceeds the permitted standard for earthworks of 1000m³. Therefore, consent is sought for a discretionary activity under Rule 5.1.5.3.
- (c) The Proposal cannot meet Standard 5.4.7.2 as the solar panels will result in glare at Managamaire Road between October to March each year. Therefore, consent is sought for a discretionary activity under Rule 5.4.7.3.

6. SUBMISSIONS

6.1. I have read and considered the submissions received on the application. I summarise below the issues raised by the submitters:

Name of submitter	Address/ Location	Position	Summary
Abbe Hoare	17 Fouhys Road	Support	
Amy Blackwell	192 Tutaekara Road	Oppose	Noise Glare – shelterbelts take time to grow.
HiRock Limited,	Quarry at 391	Oppose	Incompatible with consented quarry operations.

c/- Josua Grobler	Mangamai re Road		<p>Further consultation requested to see if a mitigation plan acceptable to all parties can be developed.</p> <p>Reverse sensitivity – dust concerns.</p>
Patricia, Terrence and John Moore	Dougherty s Road Lots 1 & 2 DP 67352 and Sections 63A, 65, & 66 Block XIV Mangahao	Oppose	<p>Devaluation of land.</p> <p>Landscape effects (visual effects)</p> <p>Glint/glare/sunstrike each evening.</p> <p>Noise concerns.</p> <p>Planting – phormium tenax (NZ flax) will become a breeding ground for rats and stoats.</p> <p>Concerned they hadn't been advised of the application before.</p>
Ken and Steph Norman	Dougherty s Road Lot 2 DP 67352	Oppose	<p>Visual – views</p> <p>Glare especially as some trees are to be removed.</p> <p>No consultation.</p> <p>Devalue property and of blocks leased.</p>
Stewart Smith	126 Tutaekara Road	Oppose	Further consultation requested.
Karen Smith			Require more information on proposed signage, landscaping and construction methodology (including access for

			<p>construction, noise and length of construction period.</p> <p>Landscape (visual effects).</p> <p>Potential noise impact.</p> <p>Concerned with saleability and value of their land.</p> <p>Concerned they hadn't been advised of the application before.</p>
Wayne Morris	154A Tutaekara Road	-	<p>Devaluation of land.</p> <p>Landscape (visual effects)</p> <p>Construction effects including noise, traffic, dust and power cuts.</p> <p>Time for mitigation shelterbelts to establish.</p> <p>Pests – rats and stoats living in shelterbelt.</p>

6.2. All planning matters raised in the submissions are considered in Section 7 below. Concerning the submission points related to the devaluation of property values I note that this matter cannot be considered as part of this process. I agree with Mr Bashford's consideration of this in Paragraph 38 of his report.

7. SECTION 104(1)(A) ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

7.1. Section 104(1)(a) of the RMA requires that when considering an application for resource consent and any submissions received the consent authority must consider, amongst other things, any actual and potential effects on the environment of allowing the activity including its positive effects.

- 7.2. An assessment of the effects of the proposal on the environment has been reported on in Section 9 of the AEE and in Mr Bashford's s42A report. Mr Bashford's assessment concludes that he is confident that the potential or actual effects can be mitigated to levels where they are minor overall. I have read through Mr Bashford's report, and agree with his conclusions and his recommendations reached. My summary on the key consideration of effects is as follows:

Landscape and visual amenity

Landscape Effects

- 7.3. *"A landscape effect is a consequence of changes in a landscape's physical attributes on that landscape's values. Change is not an effect: landscapes change constantly. It is the implications of change on landscape values that is relevant"*¹.
- 7.4. Mr Langbridge and Mr Bray both detail that the Site and receiving environment has open rural landscape values made up by the flat expansive and productive working rural landscape. The lack of built form in the landscape aside from scattered rural dwellings, farm buildings and electricity infrastructure means that any changes to the landscape are likely to be easily noticed.
- 7.5. While the Proposal will change the physical environment of the Site from a largely open landscape to a predominantly 'rural industrial' character with an underlying primary production activity, it will over time become well screened from the surrounding environment by shelterbelt planting and will overall become less dominant in the landscape.
- 7.6. The rural environment is a working environment and valued as such. Agrivoltaic production is essentially a cluster of production activities appropriately located in the Rural Management Area of the Tararua District and not therefore an incongruous element either in terms of the Plan expectations or by reasons of its essential character. It results in change but is not adverse. This is powerfully seen in the Tararuas where more prominent landscapes are altered by large windmills and are accepted and endorsed as efficient and effective elements of a working landscape.

¹ *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines'. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022. Page 61.*

7.7. In my opinion, when all considerations are taken into account such as the need for the facility to locate adjacent to or close to a substation, to be located in a rural environment due to scale, the dual use of the Site and ability for it to continue to be used for productive purposes, the current drive and demand for sustainable and renewable energy generation which informs the public's views of the activity, the fleeting views as vehicles move past the sites associated with the limited amount of traffic and local benefits that will accrue the associated landscape effects reach a point where they are no more than minor.

Visual Effects

7.8. *“Visual effects are a subset of landscape effects. They are consequences of change on landscape values as experienced in views. They are one technique to understand landscape effects.”²*

Neighbouring Properties

7.9. There is general agreement between Mr Langbridge and Mr Bray that at the majority of neighbouring properties where a complete Affected Party Approval had not been provided, the extent of visual effects will be **low-very low** translating to **less than minor**.

7.10. The properties where there is a difference of opinion between the two landscape architects are at:

- 391 Mangamaire Road
- 500 Mangamaire Road
- Lot 2 DP 546734 (the property that wraps around 500 Mangamaire Road).
- Lots 1 & 2 DP67352
- 226 Tutaekara Road

I discuss each of these properties in turn below.

² *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines’. Tuia Pita Ora New Zealand Institute of Landscape Architects, July 2022. Page 79.*

391 Mangamaire Road

- 7.11. This property is owned by HiRock Limited where quarrying activities take place but where there is also a dwelling located on the Site currently tenanted. Notably, Affected Party Approval was provided from the tenants and included with the application. A submission in opposition has been received from HiRock, but no submission points related to landscape or visual effects.
- 7.12. Mr Bray considers the visual effects on this property will be **moderate**, translating to more than minor³, but with the establishment of screen planting (assessed as flax), Mr Bray considers the visual effects will reduce to low-moderate⁴, translating to **minor**.
- 7.13. Mr Langbridge notes that there is currently limited vegetation around the dwelling and that views of the solar farm will be unimpeded until the shelterbelts become established⁵. Once the shelterbelts are established, Mr Langbridge considers that the structures will be thoroughly screened. This, in turn will result in a partial loss of view to the western hills and will result in some shading from the shelterbelt which is in line with a permitted baseline of shelterbelt planting⁶ within a rural environment. Mr Langbridge considers that with mitigation, visual effects on this property will be **low**⁷, which translates to less than minor. This assessment is based on the mitigation achieved from the 22m shelterbelt setback from Mangamaire Road and screen planting managed at a minimum of 3m in height. Once the screen planting is established, Mr Langbridge considers that the solar farm will be fully screened.

500 Mangamaire Road

- 7.14. Mr Langbridge identifies that the primary view of the house and outdoor areas at 500 Mangamaire Road is towards Farm A, which is approximately 300m to the north⁸. Once the screen planting is established, Mr Langbridge considers the effects on this property will be low⁹.

³ Landscape Evidence – Shannon Bray para [11]

⁴ Landscape Evidence – Peer Review of Landscape assessment Report by Rough Milne Mitchell Ltd

⁵ Landscape Evidence – Mr Langbridge Para [98]

⁶ Landscape Evidence – Rory Langbridge [Para99 and 100]

⁷ Landscape Evidence – Rory Langbridge [Para 102]

⁸ Landscape Evidence – Rory Langbridge [Para 107]

⁹ Landscape Evidence – Rory Langbridge [Para 110]

7.15. Mr Bray similarly commented on the open views across the neighbouring paddock to the Site and that the visual effects on this property will be moderate-high¹⁰. When Mr Bray made his assessment, no planting was proposed along the southern boundary of Farm A, but this has subsequently been included in the Proposal.

7.16. I note that no submission was received on the Proposal from the owners or occupiers of this property.

Lot 2 DP 546734 (the property that wraps around 500 Mangamaire Road)

7.17. This property has a rural productive use and has not been built upon. Should a residential activity be established on the site, Mr Langbridge considers that the extent of visual effects could be mitigated through shelterbelt planting and the design and location of the house and planting around the house. He considers if residential activity were established on this property 3-5 years after the establishment of the solar farm, then visual impact would be low¹¹.

7.18. Mr Bray considers the visual effects of the proposal on this property will be moderate-high, equating to more than minor given the unrestricted views across to the solar farm Site A. As with 500 Mangamaire Road, I note that shelterbelt planting now forms part of the Proposal along the southern boundary of Site A.

7.19. I note that no submission was received from the owners or occupiers of this property.

Lots 1 & 2 DP67352

7.20. This is the Moore's property which is elevated above the subject site. This property has a rural productive use and has not been built upon, although I note that through submissions, Ken and Steph Norman (who lease the land for farming purposes) hope to be future owners of the property and build upon it. As such, I understand that no application for building consent has been made at this time.

7.21. Mr Langbridge considers that the solar farm could add pattern and texture to the broader landscape and be a point of interest but that the adverse impact

¹⁰ Landscape Evidence – Shannon Bray

¹¹ Landscape Evidence – Rory Langbridge [Para 115]

of such a view on the broader views of the surrounding valley landscape would be moderate-low¹². However, both Mr Langbridge and Mr Bay consider it possible to design and build a house that mitigates the effects of the solar farm¹³.

226 Tutaekara Road

7.22. Mr Langbridge considers a potential location for a new dwelling on this property as being located on an elevated ridge line, although considers a location such as this restrictive and complicated but feasible. At this location, the impact of the solar farm Farms A and B would be moderate-low, but measures could be taken to address the exposed nature of such a location through planting and building design.

7.23. This is a speculative location, and I consider that there could be several other locations where a dwelling could be built upon. Mr Bray considers the visual effects on this property to be very low (less than minor)¹⁴.

Public Locations

7.24. There is agreement between Mr Langbridge and Mr Bray that due to the proximity to Mangamaire and Tutataekara Roads the solar farm will result in a prominent, unusual, novel change and 'they will be noticed'. The effects of this change will however be localised due to the limited height of the panels when compared with say a windfarm. In the short term, the impact will be moderate-high but reduce quickly over the time it takes the shelter planting to establish, which is anticipated to be 2-5 years.

Summary of evaluative conclusions on Visual Effects

7.25. Considering Mr Langbridge's and Mr Bray's expert evidence and applying an evaluative lens, my opinion is:

7.25.1. Mitigation is an appropriate response to the direction of the Plan concerning this aspect of amenity; and

7.25.2. The localised visual effects of the solar farm can be appropriately mitigated through shelterbelt planting around the edges.

¹² Landscape Evidence – Rory Langbridge [Para 122]

¹³ Landscape Evidence – Rory Langbridge and Shannon Bray

¹⁴ Landscape Evidence – Shannon

7.25.3. While it is purely speculation on land which have not yet been built upon but may do so in the future, any future dwelling could be designed, built and landscaped to ensure that it does not have views of the solar farm. By that stage, and assuming the solar farm has been constructed, those buildings on such sites will have the option of orientating and/or screening themselves from the solar farm should they choose so. In other words they will have the ability to mitigate the effects at their property. the effects on that property are less than minor.

7.26. Mr Langbridge states that the boundary fencing and planting can be undertaken as part of the initial stage of the development. As the farm is installed, the shelterbelt planting is already establishing itself, and the visual effects are increasingly mitigated. However, it is his opinion that it is not critical that this planting is established in advance.¹⁵

7.27. Pre-construction planting at the boundary has already been volunteered as a condition of consent, and therefore I consider it appropriate that this is a requirement of consent. I note that Mr Bashford's draft condition 8a. requires this, and while I agree with this timing, with a proposed change to the plant species to be established, I would prefer to see this condition revised so that it is not specific to *Phormium tenax* (Harakeke).

Glint and Glare

7.28. The glint and glare effects are described in the evidence of Mr Langbridge and Mr Hayman and are based off modelled results from Vector. The consideration of effects is also based on modelled results for existing and potential receivers as requested as further information by Mr Bashford following the close of the submission period. Further assessment was sought on the following specific properties:

- (a) 17 Fouhys Road – The model results show yellow glare at this property.
- (b) 126 Tutaekara Road – The model results show no glare on this property.

¹⁵ Landscape Evidence Para [218]

- (c) Dougherty's Road – Lot 2 DP 67352 – The model results show yellow glare at this property.
- (d) 192 Tutaekara Road – The model results show no glare at this property
- (e) 391 Mangamaire Road – The model results show between 15 and 19 minutes of green glare at this property and 1 minute of yellow glare.
- (f) 154A Tutaekara Road – The model results show no glare on this property.

7.29. Importantly solar panels are designed to minimise reflections off the surface of each panel to maximise the energy available for conversion to electricity. When glare is present it is classified into:

- Green: low potential to cause “after image” – SLR discounts green zone glare for road users and residential observers because its low level of effect.
- Yellow: potential to cause temporary “after image” – Receivers of yellow glare fall into the moderate impact category. In this instance consideration of mitigation is required.
- Red: potential to cause retinal burn (permanent eye damage) – Red glare is not possible from a standard solar array¹⁶.

7.30. Yellow glare has been modelled at the existing receivers. At these receivers the maximum glare falls between 10 and 30 minutes per day¹⁷.

7.31. Yellow glare has also been modelled at potential (speculative) receivers, potential receivers of yellow glare had maximums above 30 minutes per day and one location had greater than 30 hours per year though most were between 10 and 30 hours per year requiring mitigation or avoidance¹⁸.

7.32. All glare modelled is very close to sunrise or sunset, at these times a receiver experiencing these reflections would also be looking almost directly at the sun. SLR does not consider this situation to be glare. When the difference in angle

¹⁶ Evidence of Mr Hayman

¹⁷ Evidence of Mr Hayman

¹⁸ Evidence of Mr Hayman

between an incoming direct solar ray and its associated reflected ray is less than 10 degrees as the sun will dominate the field of vision.

7.33. Elimination of reflection conditions can be achieved through mitigation measures:

- a) Screening along relevant perimeters of the proposed facility typically with evergreen vegetation; or
- b) Controlling the rest angle of the tracking system which can effectively avoid glare from occurring in the first place; or
- c) Combining both mitigation measures. For example the rest angle could be controlled until the screening is established.

Summary of evaluative conclusions on Glint and Glare

7.34. My conclusions based on the evidence of Mr Langbridge and Mr Hayman is the following:

7.34.1. Any effects of green glare are not considered because the effect is low.

7.34.2. Many of the identified locations are not the site of existing dwellings, and on-site mitigation is feasible by planting and design. Mitigation at the solar farm is also possible through the resting angle of the panels and through shelterbelt planting.

7.34.3. The amenity impacts are low.

Noise

7.35. Consideration of noise has been given to the operational noise and construction noise associated with the development. Concerning the operational noise, both Ms Hamilton and Mr Chiles agree that noise expected to be generated from the solar farm will be within the noise limits of the District Plan at all sensitive receivers during daytime and nighttime hours without any attenuation or mitigation.

7.36. In terms of construction noise, Mr Chile's evidence considers this to remain unresolved, given that an update or amendment to the Assessment of Noise Effects had not been provided, substantiating that construction noise

standards will not be breached. Ms Hamilton's evidence shows that New Zealand Standard NZS 6803: 1999 Acoustics – Construction Noise can be met but could require alternative construction methods at some locations to ensure that noise and vibration comply with the standard. Therefore, I agree that draft Condition 10 e. of Mr Bashford's report is appropriate to mitigate potential effects of construction noise. I also agree with the recommended conditions of consent of Ms Hamilton on noise to address this.

Summary of evaluative conclusions on Noise

7.37. My opinion based on the evidence of Ms Hamilton is the following:

7.37.1. Operational noise will be compliant with the District Plan provisions at all receivers without mitigation resulting in less than minor effect.

7.37.2. The applicant has committed to meeting the Construction Noise requirements this may require alternative construction methods near close receivers site. With compliance of the drafted conditions of consent, the effect will be less than minor.

Safe and Efficient Operation of the Road Network

7.38. Transport effects are discussed in Mr Bashford's evidence with his assessment being that the effects on the safe and efficient operation of the roading network will be less than minor. I agree with this assessment noting that the most traffic to the site will be during the temporary construction period, when earthmovers and construction workers will travel to the site and when the solar infrastructure is delivered. Post-construction, the Proposal will not generate a large volume of traffic, with approximately 2 vehicles per month for general checks, 2 car per day over 4 weeks annually for scheduled maintenance, 2 cars per day over 4 weeks for unscheduled maintenance and 8 cars per day for 4 weeks for module cleaning.

7.39. Existing access points onto the site for construction or operational traffic from Mangamaire Road will be utilised for the Proposal. At these locations, Mangamaire Road is sealed, straight and has good visibility in either direction.

7.40. Mr Bashford's drafted conditions 24-27 address and will mitigate potential effects on the safe and efficient operation of the road network by ensuring that

the loading and unloading of trucks is carried out within the application site, that all construction traffic accesses the site from Mangamaire Road only which is the road with the lowest traffic volumes and that debris tracked onto Mangamaire Road from construction traffic is cleared away immediately. I agree with Mr Bashford that these conditions are appropriate.

Summary of evaluative conclusions on transportation effects

7.41. My opinion on transportation effects remains the same as in my AEE. That is:

7.41.1. The effect on the surrounding road network will be less than minor due to the condition of the road which is straight, sealed with good visibility in either direction and due to the low traffic environment of the area.

7.41.2. The draft conditions of consent can further mitigate potential effects on the safe and efficient operation of the road network.

Reverse Sensitivity

7.42. Hirock Quarries have submitted in opposition to the Proposal due to the potential for reverse sensitivity effects to arise. I recognise that quarrying activities can generate dust from their excavations but also from truck movements and that dust can potentially affect the ability of the solar panels to absorb solar rays.

7.43. Activities within the solar farm can also generate dust/dirt on the solar panel, such as sheep rubbing against the panels or dust/dirt from the ground or cropping activities. This means that the operator is required to undertake regular monitoring of the solar panels and cleaning when required as part of their operations..

7.44. The Proposal includes the establishment of shelterbelt planting, which will aid in mitigating the potential effects of dust. This planting has been revised and is now proposed to be a single row of Cypress or Totara hedgerow planting along the road boundaries of Farms A and B and along the southern boundary of Farm B adjacent to the HiRock quarry access road. The second mitigation measure proposed to address HiRock's reverse sensitivity concerns is the volunteering of a no-complaints covenant. volunteered condition is as follows but also set out in Section 13 below.

That a Land Covenant be prepared by the applicant's lawyer and registered at the applicant's expense. The covenant shall read as follows:

Where gravel quarrying activities undertaken in the surrounding area by Hirock Quarries or their successor are carried out in accordance with the relevant District Plan requirements, or the conditions of resource consent (Insert reference to current consent here RMXXXX) the property owner and solar farm operator shall not:

Bring any proceedings for damages, negligence, nuisance, trespass or interference arising from the use of that land; or

Make nor lodge, nor;

Be party to, nor;

Finance nor contribute to the cost of

Any application, proceeding or appeal (either pursuant to the Resource Management Act 1991 or otherwise) designed or intended to limit, prohibit or restrict the continuation of the operations of the Hirock Quarries or their successor which are carried out under the terms of their resource consent (Insert reference to current consent here RMXXXX).

Summary of evaluative conclusions on reverse sensitivity effects

7.45. Considering the mitigation measures proposed, I consider that reverse sensitivity effects will be less than minor.

Natural Hazards

7.46. Mr Bashford's assessment of natural hazard risk in his evidence agrees with my assessment set out in Section 9 of the AEE. In terms of the identified flooding overlay located across a small part of both Farm A and B, the solar farm infrastructure will be located outside areas prone to flooding given the setback proposed to the wetland and the setback and elevation above the Mangatainoka River. Furthermore, earthworks will not change the contour of the land and soil permeability will be retained given the site will retain pasture cover and/or be planted in crops to ensure that flood risk will not be spread onto other properties.

7.47. The proposal will also not exacerbate an earthquake or liquefaction risk, given the proposal is not for habitable buildings.

Summary of evaluative conclusions on hazards

7.48. Overall, I consider that natural hazard effects will be less than minor.

Cultural

- 7.49. Mr Langbridge and myself had an initial meeting, followed by a site visit with representatives of both Rangitāne o Tamaki nui-ā-Rua (RoTnaR) and Ngāti Kahungunu ki Tāmaki-nui-a-Rua who represent the mana whenua of this locality on the 11th and 12th July 2022. Further correspondence with these representatives has been undertaken since that time, and the application was submitted with support from Mr Kendrick of Ngati Kahungunu. No submission has been received on the application from Ngati Kahungunu.
- 7.50. Likewise, no submission has been received on the application from Rangitāne o Tamaki nui-ā-Rua. However, I acknowledge that they did supply TDC with recommendations when the application was initially received. These recommendations proposed an Accidental Discovery Protocol, to achieve a 20m setback from the wetland, for RoTnaR to undertake cultural monitoring of the wetland and to plant eco-sourced native planting preferably before construction begins.
- 7.51. In terms of sites of cultural significance it is noted that there are no known or recorded wahi tupuna or wahi tapu (sites of significance) within this specific location. Mr Bashford also makes this observation, stating that there are no sites of significance listed in the District Plan within or adjacent to the site. RoTnaR have advised that historical/customary information acknowledges that Rangitāne tupuna (ancestors) were present in this area with their settlements nearby and that although the land has been modified due to farming, there is a possibility of unearthing or disturbing signs of occupation in the form of archaeological findings or Wahi Tupuna and Wahi Tapu sites of significance during earthworks¹⁹. Mr Bashford has included the RoTnaR recommendation for an Accidental Discovery Protocol (ADP) to apply to all earthworks for this application as Draft Condition 28. I agree with this condition.
- 7.52. Regarding the wetland setback, a 10m setback is proposed between the wetland and the fence. This meets the requirements of the National Environmental Standard for Freshwater; therefore, I consider this setback to be appropriate. The applicant is also proposing planting locally appropriate plants, which will aid in filtering any runoff from the site, improving the water

¹⁹ Rangitāne Cultural and Environmental assessment

flow into the wetland. Mr Bashford has included a draft condition (Condition 8b.) to ensure that this planting is undertaken following the Proposed Landscape Mitigation Plan before construction of the solar farm commences. Under draft Condition 9, Mr Bashford requires evidence of the planting, including photos, to be submitted to TDC within one week of planting completion. I agree with draft Conditions 8b and 9.

7.53. Regarding the cultural monitoring of the wetland, I agree with Mr Bashford's assessment that this is a matter to be considered outside of the consenting process.

Summary of evaluative conclusions on cultural effects

7.54. I consider tangata whenau are acutely aware of the need for renewable energy projects and support appropriate development as they have done for wind farms.

7.55. The proposal is consistent with the ethic of kaitiakitanga based on my assessment of tangata whenua views.

Effects on the Soil Resource

7.56. As set out in my AEE, utility-scale solar farms are a relatively new activity emerging within New Zealand, but they have been around internationally for some time now.

7.57. The solar farm panels sit on solar tables above the ground, and it is only the supports that occupy the soil resource along with the other solar infrastructure, such as inverters. This means that for the most part the land upon which the solar farm is located retains its ability to be used for primary production purposes.

7.58. The solar panels are designed to track the sun meaning that they pivot east to west as the sun moves across the sky. When the tables are facing directly upwards there is a gap between the rows of solar tables and when they are at their maximum eastern or western tilt there is a larger gap. These gaps ensure that both sunlight and rain will continue to reach the soil resource therefore enabling the growth of pasture.

7.59. Earthworks will be minimal due to the footprint of the solar tables, inverters, storage buildings and associated cables. Earthworks predominantly involve

excavation and refilling with a small degree of respreading the soil. Due to the extent of earthworks required, it is considered that topsoil at the site will remain intact and capable of sustaining pasture cover.

7.60. The Proposal will represent a small amount of the land resource being lost (equating to less than 1% of the Site) which when considered over the wider rural resource area will be even more insignificant. The land will continue to be used for primary production as this also provides benefits to the applicant.

7.61. Internationally, 'agrivoltics' or 'agrisolar' in the form of 'solar grazing' is a common form of co-land use due to its benefits for both energy companies and farmers. In my further information response from 20th February 2022 is information taken from 'The Australian Guide to Agrisolar for Large-Scale Solar'. This guide refers to research which sets out that crop selection is important under the solar panels with grass/clover being identified as suitable to grow under the elevated solar panels. In the guide's research the growth rate of certain crops (including grass) was not reduced under the panels, and that performance of some plants was improved. Possible reasons for improved outcomes were identified as being:

1. The reduced exposure of plants to sun and extreme weather events.
2. The solar panels also provide stock with protection from the elements.
3. Improves water use efficiency of crops/vegetation and runoff from panels.
4. Soil moisture and temperature.
5. Ambient temperature.

7.62. Given that the New Zealand solar setting is relatively new, research here is just getting started with initial findings from Massey University on older panels indicating that grass growth underneath the panels was reduced between the panels it was increased with the two balancing each other out.

Summary of evaluative conclusions on highly productive soils

7.63. In my opinion the Proposal will result in less than minor adverse effect on the soil resource given it can continue to be used for primary production purposes

and only a small amount of the soil resource will be occupied directly by structures.

Effects on existing electricity infrastructure

- 7.64. The proposal's effects on existing electricity infrastructure have been further considered through the consent processing process. I have corresponded with Transpower regarding the Proposal and potential effects on their 110kV transmission lines that run along the Mangamaire Road corridor.
- 7.65. Together with Transpower, the applicant has agreed upon a set of conditions which we volunteered to TDC as part of the Proposal. Mr Bashford has included these conditions under draft conditions 36-41.
- 7.66. Consequently, a change is necessary to the site layout and landscaping plan so that these conditions can be met. That is that a separation distance is achieved from MGM-MST-A National Grid transmission line to the security fence, vegetation and solar infrastructure. This revised plan with greater setbacks achieved is provided in Mr Langbridge's Graphic Attachment to his evidence.

Summary of evaluative conclusions on effects on electricity infrastructure

- 7.67. In my opinion potential effects on the existing electricity infrastructure can be suitably mitigated through the volunteered conditions agreed to with Transpower.

Positive Effects

- 7.68. I have described the positive effects in my AEE, which relate to harnessing the renewable solar energy resource rather than a finite resource for electricity generation. This Proposal will provide positive effects on the well-being of people locally, regionally and nationally by assisting in diversifying electricity generation within the District, increasing the electricity generation capacity and increasing the security of electricity supply at local, regional and national levels (wherever electricity is most needed at any one time).
- 7.69. The Proposal will also contribute towards addressing the effects of climate change through its assistance in achieving the NPS-REG national target of 90% renewable energy production capacity by 2025 and the reduction of net

emissions of all greenhouse gases (except biogenic methane) to zero by 2050.

7.70. The site has historically been used as a dairy farming operation. As such, I consider that it is reasonable to expect there to be a reduction in environmental effects commonly attributed to dairy farming, such as ground and surface water contamination from nitrate leaching, excess nutrient losses, larger emissions of greenhouse gases, particularly methane and nitrous oxide from animal waste and effects on biodiversity.

Effects Conclusion

7.71. I consider there are less than minor adverse effects associated with the following:

- (a) Glint and glare
- (b) Noise
- (c) The safe and efficient operation of the road network
- (d) Reverse sensitivity
- (e) Natural hazards
- (f) Cultural effects
- (g) The soil resource
- (h) Existing electricity infrastructure

7.72. I consider that there will be temporary effects that are more than minor concerning landscape and visual amenity, but that these will reduce to minor or less than minor with mitigation and over time.

7.73. I consider the positive effects of the proposal to include: diversifying electricity generation, adding to electricity generation capacity and increasing the security of supply. The proposal will also assist in meeting New Zealand's climate change targets.

8. SECTION 104(B)(VI) ASSESSMENT OF OBJECTIVES AND POLICIES – THE PLAN

Chapter 2.3 Rural Land Use Management & Chapter 2.6 Amenity and Environmental Quality

- 8.1. The relevant provisions of Chapters 2.3 and 2.6 are similarly worded, so they are considered together. These are **Objective 2.3.2.1** and attendant **Policy 2.3.2.2**, **Objective 2.3.4** and attendant **Policy 2.3.4.2** and **Objective 2.6.2.1** and **Policy 2.6.2.2**.
- 8.2. **Objective 2.3.2.1** and **Policy 2.3.2.2** collectively seek to achieve sustainable rural land use practices and an efficient use of resources.
- 8.3. I consider that the Proposal is **consistent** with these provisions as it is sustainable in that the solar farm will generate electricity from a renewable energy source while protecting the valuable land resource of the LUC 2 land underneath for future generations. The proposal also represents an efficient use of resources in that it optimises the capability of the site to be used for dual purposes (electricity generation and farming).
- 8.4. **Objective 2.3.4** and **2.6.2.1** and **Policies 2.3.4.2** and **2.6.2.2** seek to ensure that a high level of environmental quality and amenity throughout the rural area of the District is maintained. A high level of environmental quality (not restricted to the site or surrounding context) will be achieved through the proposal given that solar energy, as a clean renewable source of electricity plays an important role in powering New Zealand's Zero Carbon Emissions Goal. In terms of amenity, it is considered that landscape and visual effects can be suitably mitigated through setbacks and shelterbelt planting. These mitigation measures ensure that the effects once shelterbelts have been established will be no more than minor.
- 8.5. I consider the Proposal is consistent with Objective **2.3.4** and **2.6.2.1** and **Policies 2.3.4.2** and **2.6.2.2**.

Chapter 2.4 Subdivision and Development

- 8.6. I consider the Proposal is **consistent** with the aims of **Objective 2.4.3.1** and the supporting **Policy 2.4.3.2**. The objective seeks to promote a pattern of subdivision and land use resulting in an efficient use and development of

natural and physical resources. This is achieved through the dual use of the site for renewable electricity generation and primary production. **Policy 2.4.3.2 (c)** is relevant to the Proposal as it seeks to protect network utilities and infrastructure from adverse effects associated with subdivision and land use activities. There is a key operational and functional need to collocate solar farms with substations therefore it is also essential that the existing network utilities, the Transpower and Powerco substations and their lines are protected from adverse effects associated with the development. The Proposal has been revised with greater setbacks to the lines achieved from the fence, planting and setback of the solar tables to ensure the development does not result in adverse effect on these network utilities.

Chapter 2.5 – Natural Hazards

- 8.7. **Objective 2.5.2.1** and **Policy 2.5.2.2** seek to reduce the risks imposed by and effects of natural hazards on people property and infrastructure. This can be done by (b) which seeks to reduce the risk of natural hazards through minimising the intensity of development in hazard prone areas and implementing mitigation measures and response procedures as appropriate. The Proposal **is consistent** with the above Objective and Policy as the solar farm is proposed to be setback from the area identified as being a flood risk, avoiding risk in relation to flooding.

Chapter 2.8 Infrastructure

- 8.8. **Objective 2.8.2.1** and supporting **Policies 2.8.2.2** seeks to maintain and develop the District's infrastructure while avoiding, remedying or mitigating adverse environmental effects. Policy (c) has particular relevance as it seeks to encourage the co-siting of network utility equipment where practicable. This co-location is a specific locational and operational requirement for solar farms which need to be located near an existing substation, transmission towers and lines. I consider the Proposal to be **consistent** with this Objective and Policy.
- 8.9. **Objective 2.8.4.1** seeks to recognise the potential of Tararua's Rural Management Area for renewable electricity generation. The attendant **Policies 2.8.4.2** seek to recognise the local, national and regional benefits and to remedy, mitigate, or avoid, when possible the actual and potential adverse effects particularly in respect of amenity values, landscape ecology, noise and traffic. The applicant recognised the potential of Tararua's Rural

Management Area for renewable electricity generation. In particular, the site displays key geographic features – being located close to electricity infrastructure (substations, transmission towers and lines), it is relatively flat which is important for reducing potential shading effects on the panels and, in turn their ability to absorb solar rays and there are a suitable amount of sunshine hours. The establishment and operation of the solar farm will result in local, national and regional benefits as it will increase electricity generation capacity assisting in achieving the national target of generating 100% of electricity from renewable energy sources by 2030. The diversification of electricity generation within the District will increase electricity generation capacity and increase the security of electricity supply at local, regional and national levels (wherever the electricity is most needed at any one time). The Proposal will mitigate actual and potential adverse effects on the environment, as I outline in Section 7 above. I also agree with Mr Bashford’s statement that the assessment of effects needs to be weighed with the benefits derived from renewable electricity generation. I consider the Proposal to be **consistent** with this Objective and Policy.

Chapter 2.10 Treaty of Waitangi and Maor Resource Management Values

8.10. **Objective 2.10.3.1** seeks to recognise and provide for Maori values. Attendant **Policy 2.10.3.2(a)** recognises the connection to tangata whenua and their culture and traditions with land, water sites, waahi tapu and other taonga having particular regard to kaitiakitanga. Rory Langbridge and I met with Rangitane o Tamaki nui-a-Rua representatives and Ngati Kahungunu ki Tamaki-nui-a-Rua at the site. The representatives supported the project, with a key consideration being the proposed setback and planting to the potential wetland. I agree with an archaeological discovery protocol condition being imposed on the consent and overall consider the Proposal to be **consistent** with this objective and policy.

9. SECTION 104(1)(B)(I) NATIONAL ENVIRONMENTAL STANDARDS

9.1. I have considered the Proposal against the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (2011) (“NES-CS”). I have addressed this matter in the AEE and concluded that the NESCS is not relevant; Mr Bashford has agreed with this in his section 42 report. I also note that Mr Bashford’s draft condition 23 requires that if potential contamination is identified during works, then a suitably qualified and

experience persons is to assess the nature of new material and reassess the potential risk to human health and/or the environment. I am in agreement with this condition.

- 9.2. I have also considered the Proposal against the National Environmental Standards for Freshwater 2020(NESF) in the AEE and consider the application can comply and no consent is required.

10. SECTION 104(1)(B)(III) NATIONAL POLICY STATEMENTS

National Policy Statement for Renewable Electricity Generation 2011

- 10.1. The National Policy Statement for Renewable Electricity Generation 2011 (NPS REG) came into effect on 13 May 2011 and has played a significant role in promoting renewable energy developments. The Tararua District Plan gives effect to the NPS-REG through its objectives and policies promoting renewable energy development²⁰.

- 10.2. The Statement's preamble sets out that New Zealand must confront two major energy challenges as it meets growing energy demand. The first is to respond to the risks of climate change by reducing greenhouse gas emissions caused by the production and use of energy and the second is to deliver clean, secure, affordable energy while treating the environment responsibly. The strategic target set by government is that 90 per cent of electricity generated in New Zealand should be derived from renewable energy sources by 2025 (based on delivered electricity in an average hydrological year), providing this does not affect security of supply²¹. Policy A of the NPS-REG requires decision-makers to recognise and provide for the national significance of renewable electricity generation activities, including national, regional and local benefits.

- 10.3. The NPS-REG target in Policy B is clear, that to meet or exceed the national target of 90% renewable energy production for electricity demand, significant development of renewable electricity generation will be required.

²⁰ Tararua District Plan (Section 1.3.1)

²¹ NPS REG Preamble.

10.4. Policy C acknowledges the practical constraints associated with the development, operation, maintenance and upgrading of new and existing renewable electricity generation activities.

10.5. Policy C of NPS-REG provides insight into the functional and operational requirements specific for renewable energy development as follows:

“C. Acknowledging the practical constraints associated with the development, operational, maintenance and upgrading of new and existing renewable electricity generation activities

POLICY C

Decision-makers shall have particular regard to the following matters:

- a) The need to locate the renewable electricity generation activity where the renewable energy resource is available;*
- b) Logistical or technical practicalities associated with developing, upgrading, operating or maintaining the renewable electricity generation activity;*
- c) The location of existing structures and infrastructure including, but not limited to, roads, navigation and telecommunication structures and facilities, the distribution network and the national grid in relation to the renewable electricity generation activity, and the need to connect renewable electricity generation activity to the national grid”.*

10.6. With regard to the above, the site has been selected as it is a large piece of relatively flat land in an area where there are suitable sunshine hours. Importantly the site is located where there is an existing distribution network with Transpower and Power Co substations, transmission towers and lines at and alongside the site which provides both logistical and technical practicalities of being located alongside.

10.7. In my opinion the Proposal is significant and meets the intent of the NPS-REG which weights in its favour.

National Policy Statement for Highly Productive Land (NPS-HPL)

- 10.8. The NPS-HPL came into force on 17 October 2022. It requires councils to avoid inappropriate use or development of highly productive land (HPL) that is not land-based primary production. HPL must be identified and mapped by regional councils, but until such time as that is done, if it is already referenced as LUC 1, 2 or 3, it must be considered as HPL. The Site has an LUC 2 category.
- 10.9. I considered the objectives and policies of NPS HPL in my AEE, concluding that the proposed development does not represent an ‘inappropriate use or development of the site, and it will not generate reverse sensitivity effects that are likely to constrain land-based primary production activities within the receiving environment.

Is the Proposal an Inappropriate Use?

- 10.10. Clause 3.9 Protecting highly productive land from inappropriate use and development of the NPS HPL refers to territorial authorities taking measures to achieve the matters referred to in subclause 3.9(3).

- 10.11. Excluded from the definition of inappropriate use under Clause 3.9(2) is item 3.9(2)(j)(i) which reads:

“(j) it is associated with one of the following, and there is a functional or operational need for the use or development to be on the highly productive land:

- i. The maintenance, operation, upgrade, or expansion of specified infrastructure.”*

- 10.12. The Proposal is for ‘specified infrastructure’. This infrastructure is recognised as regionally or nationally significant in a National Policy Statement, New Zealand Coastal Policy Statement, Regional Policy Statement or Regional Plan. Renewable Energy developments are recognised as regionally and/or nationally significant under the NPS-REG and, NPS-ET and they are also recognised in the One Plan Mo te iti – mo te rahi (the consolidated Regional Policy Statement, Regional Plan and Regional Coastal Plan for the Manawatu-Wanganui Region).

10.13. There is also a “functional and operational” need for the Proposal to be located on the highly productive land where it is to be sited. Note that the NPS HPL does not require consideration of an alternative location.

10.14. The term “functional need” is not defined in the NPS-HPL, but it is defined in the National Policy Statement for Indigenous Biodiversity NPS-IB as:

*“**Functional need** means the need for a proposed activity to traverse, locate or operate in a particular environment because that activity can only occur in that environment”.*

10.15. The term “functional need” is not defined in the NPS-HPL, but it is defined in the National Policy Statement for Indigenous Policy C of NPS-REG provides insight into the functional and operational requirements specific for renewable energy with the particular locational requirements demonstrating a functional and operational need to be located upon the highly productive land at the site. As such, I consider the Proposal to be **consistent** with **Clause 3.9(2)(j)** of the NPS-HPL and overall that the Proposal is not an inappropriate use.

Measures for use or development on highly productive land

10.16. Clause 3.9(3) sets out that:

“Territorial authorities must take measures to ensure that any use or development on highly productive land:

- a) Minimises or mitigates any actual loss or potential cumulative loss of the availability and productive capacity of highly productive land in their district; and*
- b) Avoids, if possible, or otherwise mitigates, any actual or potential reverse sensitivity effects on land-based primary production activities from the use or development.*

10.17. It is noted that the Tararua District Council has not yet developed measures to achieve clause 3.9(3) using the RMA, Schedule 1 process and that the reference to measures in this clause does not refer to the performance of discretions under RMA, s104 nor do they refer to measures at an ad hoc site

level rather it is at the broader district level. As these measures have not yet been developed, I make the following comments in a broad sense:

10.18. Clause 3.9(3)(a) does not require an avoidance of availability or productive capacity of HPL. Availability is not defined in the NPS-HPL, but Productive capacity is as:

“productive capacity, in relation to land, means the ability of the land to support land-based primary production over the long term, based on an assessment of:

- a) Physical characteristics (such as soil type, properties, and versatility); and*
- b) Legal constraints (such as consent notices, local authority covenants, and easements); and*
- c) The size and shape of existing and proposed land parcels”.*

10.19. I consider that there will be a small loss of availability of land, but this will be minimal. The posts for the solar tables will occupy an area of approximately 231m². The site will also consist of approximately 10 inverter stations, each with a minimum 1m buffer around the container. The total area for the inverters is calculated as being approximately 130m² in area. Three buildings are associated with electricity transmission with an area of 240m². Overall, this is 0.7% (601m²) of the 86ha area of the site. While I do not know the extent of highly productive land in the District, when considered over a wider area, this will be even more insignificant. Furthermore, this area is no more than what could reasonably be expected for on-farm infrastructure such as a farmhouse, woolshed, dairy shed or associated farm buildings. I consider the extent of productive land occupied by the support structures, and inverters to be ‘minimal’.

10.20. Notwithstanding the above, the land is proposed to have a dual use. This is likely to be sheep grazing under and around the panels but could be used equally for crop growing or market gardening. As such, I consider that the Site can support land-based production over the long term and that the Proposal will not affect the land’s productive capacity.

10.21. Clause (3)(b) seeks to avoid, if possible, or otherwise mitigate, any actual or potential reverse sensitivity effects on land-based primary production from development use.

10.22. This is addressed at Section 7 of my evidence. Primary production activities can potentially reduce the performance of the solar panels through the generation of dust and/or spray or fertilizer drift. Primary production activities to be undertaken at the site equally have the potential to reduce the performance of the solar panels, for example through dust generation and/or dirt from sheep rubbing against the panels. The Proposal's activities will be mitigated through regular cleanliness checks of the panels and cleaning of the panels being undertaken when required. This must be undertaken with or without adjacent dust, fertilizer or spray drift-generating activities. In my opinion, the potential for reverse sensitivity effects from primary production activities will be avoided through the planting proposed alongside boundaries and through the setbacks achieved to other land-based primary production alongside the maintenance regime.

10.23. There are no legal constraints such as consent notices, local authority covenants or easements which would prevent this land from having a productive use alongside the solar farm over the long term.

10.24. The size and shape of the site, alongside the remainder of the land parcels, enables the efficient and contiguous operation of land-based primary production.

Is there a conflict between the NPS-HPL and NPS-REG

10.25. I do not consider that the NPS-REG and NPS-HPL conflict. The NPS-REG seeks to support the establishment and expansion of renewable energy generation and takes provenance from s7(i) and (j) of the RMA. The NPS-HPL seeks to protect HPL from inappropriate uses and developments and takes provenance from s7(b) and (g) of the RMA but provides a pathway for specified infrastructure (such as the Proposal).

10.26. This pathway is through consideration of Clause 3.9.3(a) above, and my opinion is that there will be a very limited 'minimal' loss of availability of HPL and no actual or potential cumulative loss of productive capacity. I also

consider that the Proposal will avoid any actual or potential reverse sensitivity effects on surrounding land-based primary production activities.

11. SECTION 104(1)(B)V REGIONAL POLICY STATEMENT

11.1. I consider that the District Plan has been competently prepared to achieve Part 2 and gives effect to the relevant provisions of the Regional Policy Statement (RPS). That said, below, I provide an assessment of provisions of the RPS, which I consider to have particular relevance to this Proposal. I agree with Mr Bashford that these are contained within Chapter 2 (Te Ao Maori) and Chapter 3 (Infrastructure, Energy, Waste, Hazardous Substances and Contaminated Land) of the RPS).

Chapter 2: Te Ao Māori

11.2. **Objective 2-1 Resource management** requires regard to the mauri of natural and physical resources and to Kaitiakitanga and the relationship of hapu and iwi with their ancestral lands, water, sites, wahi tapu and other taonga. Attending **Policy 2-1(c)(i)** encourages resource consent applicants to consult directly with hapu or iwi where it is necessary to identify the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu and other taonga and **(ii)** the actual and potential adverse effects of proposed activities on those relationships.

11.3. I consider that the application for the Proposal is consistent with Objective 2-1 and Policies 2-1(c)(i and ii). As set out in Section 6 above, Mr Langbridge (Landscape Architect) and I met with representatives of both Rangitāne o Tamaki nui-ā-Rua (Rangitāne) and Ngāti Kahungunu ki Tāmaki-nui-a-Rua who represent the mana whenua of this locality on the 11th and 12th July 2022. Further consultation with these representatives was had before the application was made. The application was submitted with the support from Mr Kendrick of Ngāti Kahungunu.

11.4. The iwi representative for Rangitāne provided general support for the project with recommendations centred around the potential wetland with a setback, native planting and cultural monitoring of the wetland recommended. The application provides for a 10m setback in accordance with the NPS-FW rather than the 20m setback recommended, native planting sourced locally but not necessarily eco-sourced, and no provision is made for cultural monitoring of

the wetland as part of this consent process, but this is not necessarily precluded. The recommendation for an accidental discovery protocol, while necessary through the Heritage New Zealand Pouhere Taonga Act (2014), can be easily adopted, as such, I agree with Mr Bashford's draft condition of consent 28.

11.5. I note that Rangitāne were notified as part of the limited notification process, and no submission was made. While the Proposal does not fully adopt the Rangitāne recommendation to its full extent, I consider that the Proposal adequately addresses the outcomes sought by the recommendations.

11.6. Overall, I consider the Proposal to be **consistent** with **Objective 2-1** and **Policies 2-1(c)(i and ii)**.

11.7. Attendant **Policy 2-2 Wāhi tapu, wāhi tūpuna and other sites of significance** to Maori identified in the regional or district plans as historic reserves, Maori reserves, sites recorded in the New Zealand Archaeological Associations site recording scheme and as registered sites under the Historic Places Act must be protected. There are no recorded sites of significance at or near the Site.

11.8. Iwi representatives have also confirmed that there are no known sites of significance of waahi tapu and other taonga. Should an accidental discovery of a site of significance occur during the development of the site, the applicant will be required to follow an accidental discovery protocol, I consider this to be necessary.

11.9. I consider the Proposal to be **consistent** with **Policy 2-2**.

Chapter 3: Infrastructure, Energy, Waste, Hazardous Substances and Contaminated Land

11.10. **Objective 3-1 Infrastructure and other physical resources of regional or national importance** requires regard be given to the benefits of infrastructure and other physical resources of regional or national importance by recognising and providing for their establishment, operation, maintenance and upgrading. **Objective 3-2 Energy** has not been recognised in Mr Bashford's report but I consider this also to have particular relevance to the Proposal as it requires an improvement in the efficiency of the end use of

energy and an increase in the use of renewable energy resources within the Region.

- 11.11. **Policy 3-1(a)** lists the infrastructure that must be recognised as having regional or national importance with **(a)(i)** listing facilities for the generation of more than 1 MW of electricity and its supporting infrastructure where the electricity is supplied to the electricity distribution and transmission networks.
- 11.12. The Proposal exceeds the 1MW minimum and is therefore required to be considered as being infrastructure of regional or national importance given it will generate approximately 75,642MW an hour in its first year which is significantly more than the 1 MW threshold of this policy.
- 11.13. **Policy 3-1(c)** requires that for the establishment, operation, maintenance or upgrading of infrastructure and other resources of regional or national importance have regard to the benefits derived from those activities. The positive effects/benefits of this Proposal are considered in Section 7 above for the Commissioner to have regard to.
- 11.14. **Policy 3-2** requires the Regional Council and Territorial Authorities to ensure that adverse effects on infrastructure and other physical resource of regional or national importance from other activities are avoided as far as reasonably practicable. This is relevant to the Proposal in relation to the existing Transpower and PowerCo electricity distribution network so that clause (a) the current infrastructure and infrastructure corridors are identified and had regard to in resource making decision-making. Safe separations are to be maintained under clause (e) giving effect to the New Zealand Code of Practice for Electrical Safe Distances (NZECP 34:2001) prepared under the Electricity Act 1992 and the Electricity (Hazards from trees) Regulations 2003 prepared under the Electricity Act 1992. Planting is not to interfere with existing infrastructure under clause (g) giving effect to the Electricity (Hazards from trees) Regulations 2003. The applicant has revised the site layout and landscaping proposed to adequately provide safe separation distances to the existing infrastructure and to ensure the proposed landscaping does not present a hazard to that infrastructure. An agreed set of conditions with Transpower have been volunteered, these have been included as draft conditions 36-41. I consider the Proposal to be **consistent** with **Policy 3-2**.

11.15. **Policy 3-3 Adverse effects of infrastructure and other physical resources of regional or national importance on the environment** provides local authorities with guidance on managing any adverse environmental effects arising from the establishment, operation, maintenance and upgrading of infrastructure or other physical resources of regional or national importance. Clause 3(b) requires local authorities to allow minor adverse effects arising from the establishment of new infrastructure of regional or national importance. As set out in Section 6 above, I do not consider that the effects of the Proposal will be more than minor. Therefore, I consider there to be a clear direction set by this Clause 3(b) that this Proposal should be allowed. Clause 3(c) relates to avoiding, remedying or mitigating more than minor adverse effects arising from the establishment of new infrastructure. In terms of landscape effects I note that while these may be more than minor in the short term they will be mitigated to no more than minor with the establishment of a shelterbelt.

11.16. I consider the Proposal to be **consistent** with **Policy 3-3**.

11.17. **Policy 3-6: Renewable energy** is relevant to the Proposal. It sets out:

- (a) The Regional Council and Territorial Authorities must have particular regard to:
 - (i) the benefits of the use and development of renewable energy resources including:
 - A. contributing to reduction in greenhouse gases,
 - B. reduced dependency on imported energy sources,
 - C. reduced exposure to fossil fuel price volatility, and
 - D. security of supply for current and future generations,
 - (ii) the Region's potential for the use and development of renewable energy resources, and

- (iii) the need for renewable energy activities to locate where the renewable energy resource is located, and
- (iv) the benefits of enabling the increased generation capacity and efficiency of existing renewable electricity generation facilities, and
- (v) the logistical or technical practicalities associated with developing, upgrading, operating or maintaining an established renewable electricity generation activity

11.18. Regarding Policy 3-6 I consider that the establishment of a solar farm will contribute to the benefits identified under Clause (a)(i) and (iv). In this regard I also note the NPS-REG preamble which states, *“the contribution of renewable electricity generation, regardless of scale, towards addressing the effects of climate change plays a vital role in the wellbeing of New Zealand, its people and the environment”*²². With regard to Clauses (ii), (iii) and (v), I consider that the Site has potential to be used and developed for a renewable energy resource given it has a large generally open and flat area, with little internal vegetation. The site is also located within an area with suitable sunshine hours and where the surrounding topography or built features will not result in shading upon the panels affecting their ability to absorb the solar rays. The Site is also located near to two substations and electricity transmission lines which is a key requirement for site selection, Without this co-location of infrastructure I understand the cost of establishing a solar farm of this size is likely to be prohibitive to the project becoming established.

11.19. In my opinion the Proposal is **consistent** with **Policy 3-6**.

12. SECTION 104(1)(C) OTHER MATTERS

12.1. Section 11 of my AEE sets out other matters ‘climate change’ which I consider to be relevant to the Proposal with particular regard to The Climate Change Response (Zero Carbon) Amendment Act. The Amendment Act which

²² RPS REG Preamble

provides a framework for New Zealand to develop and implement clear and stable climate change policies that contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5 degrees above pre-industrial levels and to allow New Zealand to prepare for and adapt to the effects of climate change. The Amendment Act sets a new domestic greenhouse gas emissions reduction target for New Zealand to zero by 2050.

- 12.2. This energy demand context arising from these amendments has implications for the need for regions to contribute according to their resources to renewable energy generation and for decision-makers to recognise the practical constraints associated with the development of renewable energy generation.
- 12.3. As I have already canvassed in this evidence, the site has been identified as having a unique opportunity to be used to produce energy generated from a renewable energy source particularly because the site receives a good amount of sunshine hours, it is close to existing electricity infrastructure negating the need to establish and provide further substations, transmission towers and overhead power transmission lines and because it is in a limited visual catchment.
- 12.4. The Proposal will contribute positively towards climate change response whilst also retaining the underlying pastoral use and soil resource at the site. In relation to landscape values, I consider that there is a point when the value of a landscape is moderated by broader issues such as the provision of renewable resources and contribution made to climate change mitigation and long-term sustainability. Overall, I consider that the proposal will assist in New Zealand meeting its energy demand in a location where a solar farm can be appropriately located.

13. PART 2

- 13.1. The various statutory documents referred to above have recognised, provided for, or given effect to the Purpose and Principles of the Act. As set out in the AEE that I do not believe recourse to Part 2 to be necessary. However for completeness I summarised the key provisions under Part 2 relevant to this Proposal. The summary with some additional comment is:

- (a) There are no s6 Matters of national importance relevant to this application.
- (b) In relation to s7(b), the Proposal will enable the efficient use and development of natural and physical resources. For this proposal, I consider this to be twofold as solar energy, an inexhaustible natural resource is proposed to be used for electricity generation. In utilising the available solar energy, the natural land and soil resource will be occupied by solar infrastructure but the land around the support structures and poles can continue to be used for primary production purposes.
- (c) In relation to s7(c), amenity values will be maintained in accordance with the expectations set out in the District Plan. Mitigation of the Proposal through the generous setbacks from roads, the shelterbelt planting and ongoing grazing or other primary production will ensure amenity values are maintained.²³
- (d) In relation to s7(f) the Proposal provides for the maintenance and enhancement of the environment in accordance with the relevant planning documents.
- (e) In relation to s7(g) there is no finite characteristic associated with natural solar energy. It is considered that highly productive land is a resource with finite characteristics and long-term values for land-based primary production. The development of solar infrastructure on this soil resource would mean the removal of a small amount of the land resource for the supporting structures, but primarily the land resource will remain and can continue to be used for primary production purposes.
- (f) Concerning s7(j) the Proposal provides benefits in terms of the development and use of renewable energy.

²³ Landscape evidence at [204]

- (g) Concerning Section 8, both Rangitāne o Tamaki nui-ā-Rua and Ngāti Kahungunu ki Tāmakinui-a-Rua have advised that the site is located within an area of significance to Maori, however, the site itself does not contain any known sites of significance.

14. PROPOSED CONDITIONS OF CONSENT

14.1. I generally agree with the conditions of consent proposed but have the following recommendations:

- a) Update Condition 1 to reflect that a change is made to the General Arrangement Plan to achieve a greater setback distance to electricity transmission lines and to the Landscape Mitigation Plan, which has a greater amount of shelterbelt planting proposed and a change in plant species.
- b) Update Condition 8 to reflect that a change is made to the planting at the site's boundary from flax to either totara or cypress hedgerow.
- c) Delete Conditions 17 and 34 in relation to a Pest Control Plan if a change from flax shelterbelt planting to totara or cypress hedgerow is approved.
- d) Include a new condition of consent to address HiRock's concerns regarding reverse sensitivity as follows:

That a Land Covenant be prepared by the applicant's lawyer and registered at the applicant's expense. The covenant shall read as follows:

Where gravel quarrying activities undertaken in the surrounding area by Hirock Quarries or their successor are carried out in accordance with the relevant District Plan requirements or the conditions of resource consent (Insert reference to current consent here RM XXXX) the property owner and solar farm operator shall not:

Bring any proceedings for damages, negligence, nuisance, trespass or interference arising from the use of that land; or

*Make nor lodge, nor;
Be party to, nor;*

Finance nor contribute to the cost of

Any application, proceeding or appeal (either pursuant to the Resource Management Act 1991 or otherwise) designed or intended to limit, prohibit or restrict the continuation of the operations of the Hirock Quarries or their successor which are carried out under the terms of their resource consent (Insert reference to current consent here RM XXXX).

- e) Include the recommended revisions and additions of consents on noise from Ms Hamilton's evidence²⁴

15. CONCLUSION

15.1. I have assessed the Proposal against the relevant statutory provisions and planning documents.

15.2. I consider that the effects of the proposal will be less than minor for glint and glare, noise, the safe and efficient operation of the road network, reverse sensitivity, natural hazards, cultural effects, the soil resource and upon existing electricity infrastructure. I consider that there will be temporary effects which are more than minor concerning landscape and visual amenity, but these will reduce to minor or less than minor with mitigation of the shelterbelt planting at the boundary.

15.3. I consider that there are also positive effects associated with the proposal including a diversification of electricity generation, adding to electricity generation capacity and increasing security of supply. The proposal will also assist in meeting New Zealand's climate change targets. Ultimately, while there are impacts associated with landscape and visual effects, these are of a temporary duration and will reduce to a point where they are no more than minor when the shelterbelt planting is established.

15.4. The Proposal will be consistent with the Objectives and Policies of the Tararua District Plan.

²⁴ Evidence of M Hamilton -

15.5. The Proposal is consistent with the NPS-REG, which significantly promotes renewable electricity generation. It provides directional solid support for establishing new renewable electricity generation activity.

15.6. The Proposal is consistent with the NPS-HPL and is not considered an inappropriate use or development of HPL. The Proposal will allow HPL to continue to be used for primary production now and future generations.

15.7. The Proposal is consistent with the RPS, which provides a robust framework for promoting renewable energy development to implement NPS-REG.

15.8. I generally agree with the recommended conditions of consent but have some suggested revisions and am offering up a further condition of consent to address reverse sensitivity concerns by HiRock.



Catherine Boulton

16 August 2023